DOCUMENT RESUME

ED 380 064 IR 016 985

AUTHOR Delicio, Gail; Reardon Linda
TITLE The Evolution of a Drawing.
PUB DATE [95]
NOTE 8p.; In: Imagery and Visual Literacy: Selected Readings from the Annual Conference of the International Visual Literacy Association (26th, Tempe, Arizona, October 12-16, 1994); see IR 016 977.
PUB TYPE Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Art Expression; Artists; *Childrens Art; Cognitive Processes; Computer Assisted Testing; *Creative Development; Freehand Drawing; *Knowledge Representation; Synthesis; *Verbal Communication; *Visual Perception

ABSTRACT

Does a drawing embody the form and focus of what the artist actually sees, or instead, is it only after seeing the finished drawing that the artist knows the true meaning of his or her visual experience? It is the knowledge of the visual experience that drives the representation of it. Knowledge of the visual experience is present in varying degrees, contains the defining characteristics and distinctive features of what is seen, but may not be readily accessible in its entirety at all times. To study this concept, the perceptual and cognitive activities of two children were recorded as they made drawings on paper attached to a computer digitizing board. Analysis of verbal and visual protocols synchronized in real time allowed inferences to be made about the artists' judgments as they drew. It was found that the most powerful force guiding the evolution of a drawing is not the concept of the representation of what is seen, but rather the sense of organization and balance of that representation on the picture surface which inspires the artist to give form to meaning. (DGM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

The Evolution of a Drawing

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Gail Delicio
Linda Reardon

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Alice Walker
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

ED 380 064

"What is the criterion of the visual experience?" Does a drawing embody the form and focus of what the artist actually sees, or instead, is it only after seeing the finished drawing that the artist knows the true meaning of his visual experience? This study seeks to answer questions like these posed first by Wittgenstein, in the *Philosophical Investigations* (1953), and addressed later by Wollheim in his treatise *On Drawing an Object* (1978). We tested their models by providing a running record of the perceptual and cognitive activities of two children as they made drawings on paper attached to a computer digitizing board. The analysis of verbal and "visual" protocols synchronized in real time allowed us to make inferences about the artist's judgments as they drew.

The study of the visual image as it manifests itself in drawing has long been a topic of interest to us, since we have served both as artists and art teachers during the early parts of our careers. There is a certain intrigue attached to the idea that, when given the directive to "draw from life," (i.e., draw naturalistically) the most pervasive quality to emerge in the drawings of individuals is *uniqueness* of expression. No two students produce the same drawing, regardless of how structured the assignment or how disciplined the class. This phenomenon moves us to ask once again Wittgenstein's question, "What is the criterion of the visual experience?" (p. 198, 1953). Is there a criterion, or as he puts it, a "concept of the representation of what is seen," against which people judge their drawings to be correct or incorrect, adequate or inadequate?

Knowledge and the Visual Experience

In *Philosophical Investigations* (1953), Wittgenstein comments that the criterion of the visual experience is nothing more than the representation of what is seen. If we take the notion of representation to mean a drawing of what is seen, then it follows that one might learn what is seen by examining a rendering of it (regardless of the fact that the information perceived during a visual experience is hidden to all but the viewer). Certainly, we can discover what is seen by others by observing their drawings, but it makes no sense to think that we discover, after the fact, what we ourselves see by observing our own drawing of it.

Generally, it is not difficult to respond to a drawing executed with a quality of near-photographic realism with the belief that the artist has revealed to us the impression of what he saw. This does not apply in viewing an inadequate drawing done by an artist who lacks training in draftsmanship, however. In this case, we need more information about the object of the drawing in order to deduce the criterion which inspired the representation. The draw-

IR016985

BEST COPY AVAILABLE

ing, thus, cannot be the criterion of the visual experience.

Consider the intentional graphic abstractions produced by certain artists. Are these to be viewed as variations on the criterion? If so, the criterion of the visual experience must be something that extends beyond the drawing itself. Indeed, it is *knowledge* of the visual experience that drives our representation of it. The form of this knowledge is neither a "lingering image" (Wollheim, 1978, p. 254) nor an "inner picture" (Wittgenstein, 1953, p. 196), but rather a predisposition that enables the creation of an image. It is established at the time of the visual experience, manifests itself as part thought and part image, and is more than a just a description of facts.

Perception and the Judgment of Correctness

Knowledge of the visual experience is present in varying degrees, contains the defining characteristics and distinctive features of what we see, but may not be readily accessible in its entirety at all times. We pick up, or perceive, different aspects or dimensions of what we see. Wittgenstein comments that familiarity with the various forms of visual impressions (for example, shape constancies across 2-D and 3-D space) enables one to "know one's way around the drawing," and to demonstrate "fine shades of behavior" that distinguish faulty productions from those that are correct. At the very least, this type of knowledge will ensure that certain mistakes are *not* made, notably, that the featural invariants of form are present and recognizable (e.g., as when a circle viewed at an angle is represented as an ellipse).

It is possible that the criterion upon which a drawing is made can be faulty in itself, and that it can produce, in turn, a faulty representation. To illustrate this effect, Wollheim offers the example of an academic exercise involving the act of drawing upon the "diaphanous plane"— tracing a landscape seen through a transparent sheet of paper. The product of such an exercise, when viewed as a stand-alone drawing, generally appears to be flat, mechanical, and although replete with contour, lacking in the feel of natural relationships of shapes in space. So, what can the artist do but bring the drawing in line with his general knowledge of perceptual constancies in the scene? And he does this through the trial-and-error process of correction and reconstruction. In this case, no criterion is needed, and the drawing is brought up to standard by comparison with knowledge of expected invariants of form associated with the actual visual experience.

Method

The problem of identifying the criterion of visual experience is easily addressed within the medium of philosophic inquiry, but can it stand up to empirical investigation in the "real" world? We shall now present a method by which the verbatim accounts of experiences encountered during drawing are matched with the real-time images of drawings in progress. Our subjects are two children—Sam, in prekindergarten, and Erin, in first grade. Even though the models presented by Wittgenstein and Wollheim do not account for developmental differences, we feel that the theories should apply regardless of the age of the participant.

A non-directive drawing task, "draw whatever you like" was presented individually to our two young subjects. Objects were available to "draw from life," but both chose to draw from their imaginations. (Perhaps our first encounter with developmental difference is noted here—most of the adults we dealt with earlier were more satisfied with a directive, such as "draw this apple," than with the nondirective request). Additionally, they were asked to think aloud as they drew. Both children drew on 10" X

10" sheets of paper attached to a digitizing board connected to a Macintosh computer, and protocols for both were audiotaped. A screen recording program documented the drawing as it unfolded, and the resulting file was saved as a "tape". Later the computer- and audio-tapes were synchronized and played back for analysis. Selected clips from Erin's and Sam's presentations were extracted and saved as PICT files. These clips appear on the next two pages.

Analysis of Erin's Drawing (First Grade)

As we searched for the "criterion" that inspired Erin's drawing of the "Garbig Monster", it occurred to us that it might be found in knowledge of the Sesame Street character "The Grouch" ("he loves garbage...loves garbage cans"). Erin also pointed out that "her brother draws it (the monster) all the time," and directed our attention to the formal details of his build (the neck that pops up and down whenever he wants, hands on his knees, long fingernails, three stomachs, and an ugly toe).

She seemed to be creating spontaneously and without hesitation, first constructing the central image of the monster, and then adding figures one by one until the composition was complete. Erin expressed sheer delight and a sense of surprise at the emergence of the figures, as if they appeared out of nowhere. To some degree, this behavior supports the Wittgensteinian notion that various knowledge levels of the visual experience are available, and that the drawer cannot predict which one will present itself at a given time.

There was clearly no preconceived plan to the drawing; however, it was evident that Erin made a concerted effort to organize and balance the composition. Figures were added sequentially to the left and right of the central figure, until pictorial space was adequately filled. We conducted an additional analysis of balance in the drawing using methods devised in earlier studies (Delicio, 1989), and found the drawing to possess a very high degree of bilateral balance. The ratio of figural space between the upper-left and lower-right diagonal halves is 2368/2600 or .9108 (see Appendix).

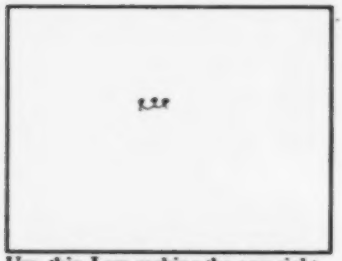
The idea of representing a faithful image of her visual experience did not appear to be of interest to Erin...what she deemed necessary simply took form. She did not request an eraser, nor did she express concern about errors in drawing. Her final (unsolicited) statement, "I didn't notice that I was going to draw him..." , verified the notion that she started the drawing without conscious knowledge of a specific personal visual experience. She continued to draw until the drawing was finished—label, frame, and all.

Analysis of Sam's Drawing (Prekindergarten)

Sam's protocol indicated that the knowledge underlying his drawing of the "Ninja Turtle" was also inspired by a television character. His method was deliberate and slow, and he had difficulty thinking aloud without prompts. Nevertheless, like Erin, he proceeded in a stepwise fashion, adding figures until the space on the page was filled.

Sam's work was accompanied by a story that seemed to synthesize elements of fantasy in the drawing, and elements of reality at home. The NinjaTurtle was caught in the act of skate-boarding on the kitchen floor: "...he's going to get in big trouble...he thinks he ain't but he is!".

Sam incorporated an interesting element of organization in his drawing by enclosing all shapes within a circular framework which he described as "the T.V." (Recall that Erin was also compelled to place a frame around her work). The all-



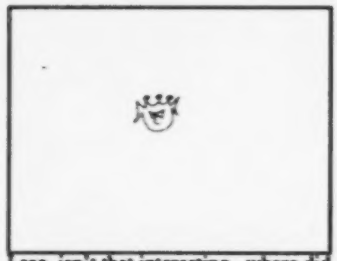
Um, this, I am making the ears right now, and they've got rings around them because he thinks he's an angel, but he's not.

Tell me what you're doing, try and talk your way through it.

I'm making the rings, now I'm making the other ears.

Goodness, you're quite an artist.

Now I'm making the head. He's got ugly eyes...it kinda looks like a bow but it's not.



I see, isn't that interesting...where did you see this animal?

My brother draws it all the time.

Oh, he does...what grade is he in?

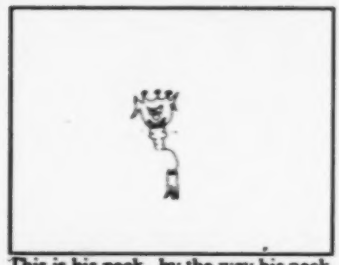
He's in third...but I don't like him.

Why not?

I don't know.

What grade are you in Erin?

I'm in first.



This is his neck...by the way his neck goes down whenever he wants it to. So I'm going to make it like it's going up.

Kind of a telescoping neck, huh?

Yeah, my brother's got a monster like this

...then he's got his hands sitting on his knees...he's got long fingernails...there's his knee, there's his ugly toe

...and there's his stomach, which he has 3 stomachs.

Oh he does...why does he have 3?

Cause he eats a lot.

His arms are painted different because his mother snapped off some of his fingernails and they won't come back.

Oh goodness, why did she do that?

I don't know.

Does this monster have a name?

Yes, can I write the name on the top?

Oh, certainly.

Could it be Garbig Monster?

Yeah, yeah... and I'm going to write, could I draw a frame around him?

Absolutely, anything you want.

To make my...I'm making a picture out of it.

I see. What are those for?

That's just part of the frame

I see.

He loves garbage, so that's why I'm making it go around.

And I'm going to make some garbage around him because he loves garbage...loves garbage cans.

This is just the way I make garbage cans.

They look kind of garbage cans I've seen before.

You know, he takes everything out so he can see what he wants.

What is that?

Soda!

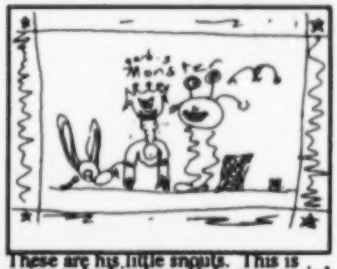
Oh, a soda can...and dead chicken...he ate off of it. Somebody already ate off of it and then he ate off of it.

And there's a birdie in the sky...with his tail sticking up, and he's got hands on his wings so he can fly and grab things...and he has a friend monster, which I'm going to draw him. And I'm going to make his friend pet, too.

Looks like a happy monster.

What's that?

Those are his legs, and he's got alien hands...out of his head.



These are his little snouts. This is going to be his dog. He's got a weird tail.

Is the dog standing behind Garbig Monster?

No, he's right beside.

He's got bunny ears...and a big huge nose, weird eyes, one big...one really tiny. He's got weird feet. And here's the moon. There. I'm done!

I like that, I didn't notice that I was going to draw him because ...

You mean you started drawing and you didn't know what it was going to be?

Yeah

Really?

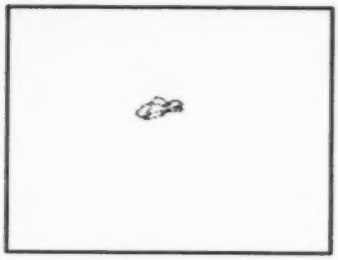
That's when I tried the Garbig Monster.

And you did not need an eraser?

No.

This is really super Erin.

Figure 1: Erin's Drawing Protocol for "GarbigMonster"

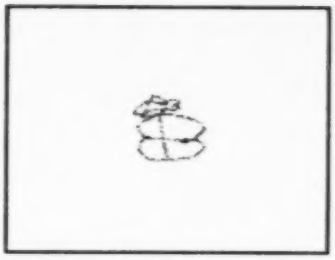


Go ahead and draw a picture...maybe you could talk to me about what you're drawing. What are you drawing, Sam?

A ninja turtle.

What is that shape?

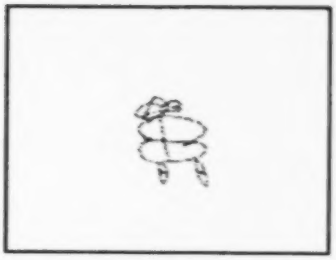
This is his head...and this is his head.



Oh, I see, that round thing is his head.

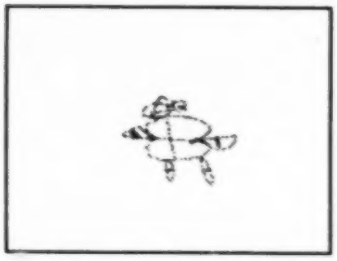
What is that?

His body.



And those are...?

His foots.

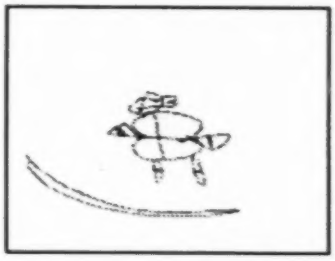


Where have you seen a ninja turtle before?

Um...on TV

What are those?

His hands.



Goodness, what is that big shape?

The floor.

He's skating on the floor...he's going to get in big trouble.

Oh, he is?

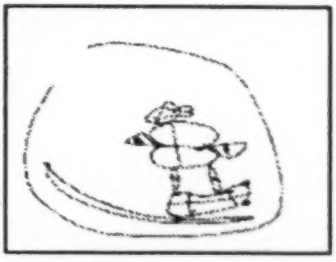
Um hm...

Why is that?

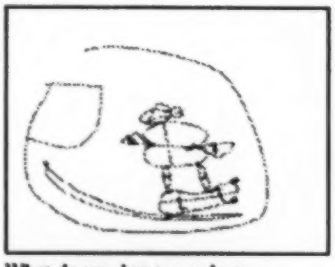
Because he's getting in big trouble because he's riding on the kitchen floor.

Oh-oh, he's not supposed to ride that skate board on the floor.

No, but he's going to get in trouble. He thinks he ain't but he is.



That's the T.V.



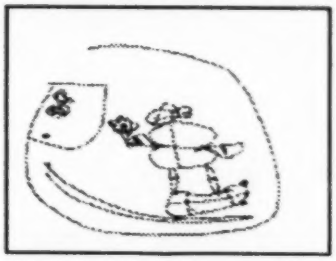
What do you have over here, Sam...those two flowery looking things? What are those?

Um, that's the things that you turn.

Oh, on the T.V....the dials or the knobs?

Yeah.

I see.



It looks like he's holding something.

A flower.

Very nice. That's good, that's very good.

Figure 2: Sam's Drawing Protocol for Ninja Turtle

encompassing frame appears to be a mechanism by which the child imposes continuity and order in the composition. An analysis of balance performed on Sam's drawing also indicated a very high level of bilateral balance. The ratio of figural space between the upper-left and lower-right diagonal halves is 1579/1682 or .938 (see Appendix).

When asked "what are those two flowery looking things?" he replied, "that's the things that you turn" (knobs), and then proceeded to draw a flower in the hand of the skate-boarding Ninja. Sam's knowledge of the visual experience seemed to be constructed as the drawing evolved (much like Erin's), and apparently was very sensitive to my suggestion of the flower image. Like Erin, Sam expressed no concern over inadequacy or incorrectness in his drawing (even though the resulting image was far from naturalistic), so there was no need to bring the drawing "in line" with the visual experience. He seemed very pleased with the final drawing, and enjoyed the fact that I liked it too.

Discussion

In retrospect, we are very pleased with the methodology that we devised to investigate the problem of identifying the criterion of the visual experience. It provides an ecologically valid approach to the collection of "visual" and verbal protocols that are associated with freehand drawing, and produces copious amounts of data that can be analyzed both qualitatively and quantitatively. In future studies, however, we advise that the subject pool be more varied with respect to age to account for developmental differences in verbal expression and drawing production, and that it should especially include the adult artist.

It is apparent to us that the most powerful force guiding the evolution of a drawing is not the concept of the representation of what is seen, but rather is the sense of organization and balance of that representation on the picture surface. It is this sense of organization that overrides feelings of inadequacies in draftsmanship, and inspires the artist to give form to meaning.

References

Delicio, G. (1989). The development of balance in children's drawings: A computational model. (Doctoral dissertation, Florida State University, 1989). *Dissertation Abstracts International*.

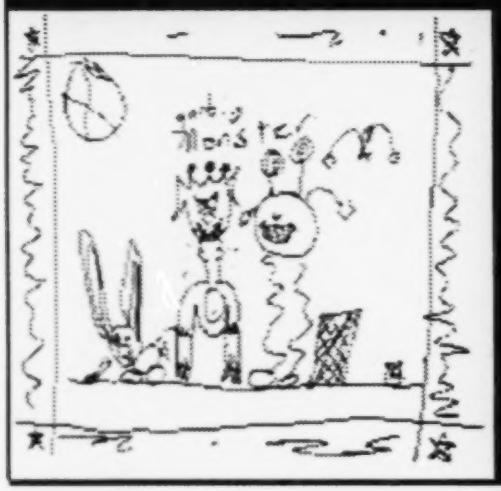
Wittgenstein, L. (1953). *Philosophical investigations* (G.Anscombe, Trans.). New York: Macmillan.

Wollheim, R. (1978). On drawing an object. In Margolis, J. (Ed.), *Philosophy looks at the arts* (pp. 249-272). Philadelphia: Temple University Press.

Appendix

Note: Each picture is parsed into eight sectors (A-H), and the strength of figural space in each sector is computed by summing all black pixels. White pixels indicate ground space. Balance estimates associated with the four principal forces of structure (vertical, horizontal, and right-left diagonals) are computed by taking the ratio of the weaker half to the stronger half.

1. Analysis of Balance for Erin's Drawing



```
TITLE:
? GarbigMonster
      white          black
H     4656           495
G     4515           636
F     4342           809
E     4411           740
D     4288           863
C     4683           468
B     4622           529
A     4723           428
. VERTICAL - 0.7250
 HORIZONT | 0.8537
 DIAG / 0.9108
 DIAG \ 0.6299
```

2. Analysis of Balance for Sam's Drawing

```
TITLE:
? NinjaTurtles
      white          black
H     4894           257
G     4501           650
F     4625           526
E     4558           593
D     4395           756
C     4906           245
B     5063           88
A     5005           146
 VERTICAL - 0.5382
 HORIZONT | 0.6096
 DIAG / 0.9388
 DIAG \ 0.2915
```